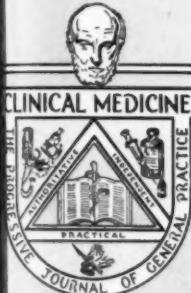


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VOLUME 52

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VOLUME 52

OCTOBER, 1945

NUMBER 10

The Treatment of Renal Insufficiency Nephritis and Nephrosis*

ACUTE NEPHRITIS: 85 percent of cases of acute nephritis are cured spontaneously and completely. Remember the possibility of sudden death from heart failure during an attack of nephritis, or after its cure. Digitalis is indicated for congestive failure.

Functions of the Kidney

1. Maintenance of the best hydration of the body.
2. Maintenance of acid-base balance.
3. Elimination of metabolic waste products.
4. Preventing loss of essential constituents of the blood.

Significance of Albuminuria

The fourth function of the kidney is often overlooked. Renal insufficiency is present if large quantities of protein are lost in the urine. Recovery is not occurring if much protein (albuminuria) is being lost, even if such clinical improvement is apparent as the disappearance of the nephrotic syndrome with edema.

The loss of protein may be responsible for many of the symptoms of nephritis, i.e. the symptoms of nephritis may be the symptoms of protein deficiency.

If the blood serum albumin is low, the nephritis is severe. The gamma portion of the globulin indicates the prognosis of the disease.

* Notes by R. L. Gorrell, M.D., on a paper delivered to the War-Time Graduate Meeting, Fitzsimons General Hospital, Denver, Colorado, March 15, 1945.

Treatment

Aside from the direct treatment of infections, all treatment of nephritis is symptomatic and palliative. The course of the disease is so variable that it is difficult to tell if any method of treatment is helpful until a large number of cases have been watched.

Symptom	Treatment
1. Anorexia, nausea and vomiting	Parenteral Fluids and Feeding.
2. Azotemia (uremia)	Increased volume of urine obtained by giving fluids, sodium chloride solution with glucose.
3. Anemia	Blood transfusions for chronic nephritis, as red cells are not formed.
4. Acidosis, dehydration	Fluids.
5. Edema	No salt, no sodium bromide or sodium bicarbonate; fluids as desired by patient; potassium citrate if no renal insufficiency; urea, if not increased in blood, is an effective diuretic, albumin intravenously for diuresis.
6. High blood pressure	Rest; no salt.
7. Heart failure	Rest; digitalis. Prognosis poor.
8. Protein deficiency	Albumin or plasma intravenously.

Use of Penicillin

Are any of the antibacterial agents effective in acute nephritis? The sulfonamides or penicillin may be used for infections in the urine, ears or tonsils, but one should remember the possibility of renal sulfonamide complications. Penicillin is not contraindicated, as it has no harmful effect on the kidneys. There is no proof that either has any curative effect in acute nephritis, however.

Associated Urinary Infection

Watch for urinary tract infection, which may accompany the nephritis. Treat it with mandelic acid or sulfonamides, depending upon the organism. The sulfonamide may be given in small doses (7 to 15 gr. or $\frac{1}{2}$ to 1 Gm. three times daily) if the urine is examined frequently.

1. Water

2. Sodium chloride, sodium bicarbonate, aluminum hydroxide. The latter holds the phosphorus in milk in suspension and thus decreases acidosis. One tablespoon is given with each glass of milk. (Cremalin or Amphojel).

3. Protein

4. Aminoacids

5. Diet furnishing basic nutritional requirements; a high protein diet should be given if the low protein level is due to loss in urine. *When giving protein orally or intravenously, give glucose or other source of calories or the body will use the protein for calories. This should be especially remembered when treating surgical patients.*

Effects of a high protein diet: 1. Increases urea taken, thus giving a diuretic effect, 2. increases the renal blood flow, 3. furnishes more potassium, 4. is an acid ash diet and 5. results in a positive nitrogen balance. The high protein diet does not have a direct effect on the kidney itself but rather on the effects of the hypoproteinemia.

Urea: This is a nontoxic substance which is quite an effective diuretic when given in doses of 40 to 90 Gm. daily; it does not irritate the kidney.

Calories: To determine how much carbohydrates to give a patient, use a simple formula like this:

Calories needed	1,200 calories
50 Gm. protein	
given x 4	200 calories
Balance still needed	1,000 calories
2,500 cc. of 10% glucose furnishes	1,000 calories
Albumin may be given intravenously,	

after a high protein, low salt diet and intravenous aminoacids have been used, for resistant cases.

Sodium Content of Protein Used

Protein (50 Gm.)	Sodium content	Sodium chloride content
Blood plasma	2.6 Gm. of Na	6.2 Gm. of NaCl
Albumin (armed forces type)	1.8 Gm. of Na	4.4 Gm. of NaCl
Albumin ("salt poor")	0.4 Gm. of Na	0.9 Gm. of NaCl

The salt content of plasma is three times the amount of salt that patient takes each day on a low salt diet.

The special "salt-poor" albumin prepared for us often yields striking results.

For those who feel that raising the level of plasma proteins is easy, we have found that it requires 750 Gm. of protein to increase the serum albumin 1 Gm. The albumin in the plasma is only a small portion of the total protein of the body (see sketch); the two seem to be in some form of balance so that given protein tends to leave the blood.

Treatment maxim: The greater the edema, the greater the diuresis that follows treatment. Slight edema often yields poorly.

Sulfonamide Kidney Injury

Because sulfonamides are being used so freely, one wonders if more cases like this may not be forthcoming:

A child of eight years was operated upon in 1942 for mastoiditis, at which time he received sulfonamide. In 1944, a gangrenous appendix was removed and 2 Gm. of sulfanilamide was left in the peritoneal cavity. The urine had always been normal up to this time on examination. On the sixth day, the output was 60 cc. and intake was 6,000 cc., there was two plus albumin, many red cells in the urine and a blood urea of 172. The child died in 2 days despite treatment. Autopsy: Infiltration around the arteries in the kidney was found, resembling periarteritis nodosa. The glomeruli were obstructed.

Transfusion Reactions

A patient with a transfusion reaction had bloody oliguria for 4 days. Blood plasma and washed red blood cells were injected intravenously. Parenteral fluids and feeding were given for 22 days before the patient could take them orally.

The injury by sulfonamides or transfusions is often reversible, if the patient can be kept alive while much of the kidney recovers and diuresis finally appears.

Discussion

Acacia was not mentioned because it accumulates in the liver and may depress serum albumin formation.

High fluid intake for edema (Schemm), combined with a salt poor diet, washes out salt and decreases sodium chloride to normal. Salt holds fluid in the tissue spaces outside of the cells.

Edema itself is apparently not harmful. We treat the two most common symptoms, 1. fatigue, which may be due to low blood proteins, and 2. edema, which is often not complained of until it is partially disabling.

Evaluating a diuretic drug or regime is difficult unless one has a control period of one month, during which time the patient is in bed, and is receiving a high

protein, low salt diet with amino acids, but without medicinal agents.

Mercurial diuretics are used by some clinicians; we do not, as they irritate the kidneys. They may be necessary if there is no response to intravenous albumin and high fluid regime.

Acute nephritis: The kidney can't eliminate 1 or 2 Gm. of salt daily as contrasted to the normal of 10 to 20 Gm. Edema in acute nephritis may be due to failure to eliminate salt; confirmation is shown by studies of edema fluid which shows no increase in protein, as would be expected if the capillaries were damaged and causing edema.

Common Mistakes in General Practice (Heart Disease and Toxic Goiter)

"The most important error made by the general man is that he treats the heart alone for heart disease in many cases of toxic goiter without realizing that the cause lies outside the heart itself."

"Whenever he spots a goiter, he routinely gives the patient iodine or an iodide without an attempt at diagnosing the type of goiter or mentioning the value of surgical treatment.

"He should have in the back of his head the fact that 66 per cent of all

thyroid adenoma patients experience serious heart damage in middle life and that 3 to 5 per cent become malignana."

"Possibly the worst thing that the general man does is to tell the patient not to bother the goiter until it bothers her; in many instances she seeks help after it is too late." (Willard Bartlett, Sr., M.D., famous thyroid surgeon, in a letter to Clinical Medicine's editors. His address: University Club Bldg., Grand and Washington, St. Louis, Mo.)

*"DON'T BOTHER THE
GOITER UNTIL IT
BOthers YOU!"*



*"AN OPERATION ISN'T
NECESSARY. THIS
MEDICINE WILL MAKE
YOU FEEL BETTER!"*



Exotic Diseases and Returned Veterans

By GEORGE A. SKINNER, M.D.,* Berkeley, California
Col. Med. Corps U. S. Army Ret.

THERE has long been something of a mystery about tropical diseases to the medicos who have never been in the tropics. In my early experience in the tropics (1900) there was a real basis for this feeling for we knew mighty little about them and there was almost no literature available. We knew that malaria and filaria were transmitted by mosquitoes, that cholera and dysentery were abundant, largely water borne or fly transmitted, and that all sorts of skin diseases were to be found. At present however, there is really no distinction as to diseases found in the tropics and temperate regions, except a few rare ones, where insect carriers do not exist in cooler countries. Most of the diseases formerly called tropical will be found more abundantly in the tropics, because the conditions are more favorable for them all the time. This combined with the usual lack of sanitation and primitive peoples, makes their spread much easier and more rapid.

As we face the probable return of our troops from the tropics soon, there seems to be a real apprehension on the part of many medical men that there will be a great influx of tropical diseases and that the burden will fall largely upon them. I believe that there is an unexpressed fear that we may fail to recognize some of these exotic diseases, rather than the fear that we will not be able to handle the problem if presented. The following conclusions are based upon some eight year practice in the Philippines, which is quite typical of tropical lands, and the contact with many thousands of troops returned from such places during a long service in the Army Medical Corps.

Malaria

Tropical malaria offers no problems that we do not have at home, except that of constant reinfection, often with two or three types of parasites at the same time, and the continuous presence of the mosquito vectors together with a large continually infected population. Whites living under tropical conditions usually lose resistance gradually and are more subject to infections. With our troops we had the problems exaggerated, especially early in the war, when everything was secondary to combat, and we had no chance to control mosquito breeding

or to protect the men from constant attacks by insects. As we have acquired experience, we have been able to combat such conditions, even in "fox holes" and bamboo shacks or barracks, and the malarial rate has been very greatly reduced. Some very severe infections have necessarily been returned to the States. However, such cases are given prolonged and careful treatment and are practically cured before they are returned to duty or discharged to their homes.

Leprosy

My early experience in the Philippines suggests that one chronic disease may begin to appear here after some years. Our troops in North Africa were close to the home of untold numbers of lepers, and there are thousands in China and other Asiatic countries that we may occupy more fully than at present. In these countries leprosy is mostly uncared for, and while feebly contagious, we may look for some increase in this infection, a few years hence. It is suggested that if any unusual chronic skin disease is seen, that is not malignant, that leprosy be considered. I feel certain that I have seen several such cases on the street in recent years that apparently have been undiagnosed. It was found in almost every locality of the Philippines, and many cases were collected in a large hospital in Manila, where I saw them, in addition to the cases I personally found in various outlying stations. Practically all cases in the United States are collected in the Public Health Hospital at Carville, La., so that it may now readily be overlooked.

Lung Flukes

A few cases of lung flukes have been reported (*Paragonimus westermanii*) and while not unknown in this country, this disease is quite common in some tropical lands. These flukes produce a chronic bronchitis, often with an abundance of dark brown sputum, in which the eggs of the worms may readily be found. Usually in these cases, eggs also appear in the stools.

The worm has a complicated life cycle. As soon as it is hatched (this must be in water) the parasite passes into a snail. There it continues development, making several changes, and when ready to break out of the snail (*cercariae*) are

in the larval stage, and as soon as possible swarm on cray fish or crabs, and penetrate the soft parts of these crustaceans. Here they become encysted, and when shell fish are eaten either raw or pickled and enter the human digestive tract, the cyst is digested out of the soft tissues, and the capsule removed. The parasite emerges, passes through the intestinal wall and across the abdominal cavity to the diaphragm, penetrates this muscle and lodges in the bronchi usually. It has been found in other localities. It sets up an inflammation, hence the brown sputum and the millions of eggs in the sputum and intestines from the mature flukes.

When there is no reinfestation the patient, usually, gradually recovers. No specific in the treatment is yet known. Such cases will appear only occasionally and infestation in our troops would be largely accidental and not likely to occur in this country. The only certain diagnostic sign is the finding of the eggs.

Elephantiasis

Quite a number of mild cases of elephantiasis have appeared in our hospitals on the West Coast, and have caused some interesting speculations. Elephantiasis is quite common in many tropical countries and we saw quite a number of them in the Philippines, though it is relatively uncommon there. The active filarial cause is spread by mosquitoes and tropical peoples are subject to, more or less, constant reinfection. Even this does not produce a large percentage of cases, as it does with malaria, so body resistant or some unknown immunity factor must be present. Our men were exposed to this type of infection very frequently, at first, and a number of cases did develop. But so far none has been reported as serious, and most cases have recovered, at least clinically. Whether there will be a chronic condition develop later, with the blocking of the lymph channels, remains to be seen. But it is well to remember that some of the manifestations are undoubtedly allergic and certainly the physic element is marked, to the extent of a phobia, in some cases. Most of these men have been returned to duty but are still under observation.

Elephantiasis has been endemic in the Charleston, S.C. area for years, but has gradually disappeared, so no reestablishment appears likely in the United States.

Encephalitis

There is some concern over a type of encephalitis of apparent Japanese origin

(type B) which is quite severe, and may spread to our troops when invasion of that land actually takes place. This is a mosquito transmitted disease, and while usually confined to horses and other animals, this type may spread readily to man.

The virus of some known varieties does not appear in the peripheral circulation of animals, and spreads by mosquitoes to birds and is conveyed from birds to horses and possibly to man. But the Japanese type has the virus in the peripheral circulation, so it is much more available to mosquitoes and might prove a serious threat.

Skin Diseases

Diseases that may prove an unexpected problem are skin infections from vegetable parasites of the ring worm type. Some of the fungi easily become established in the skin, especially around the moist portions of the body, the hairy scalp, and the finger and toe nails. These are sometimes exceedingly chronic and difficult to eradicate. Usually they will yield to persistent treatment, but it takes patience and perseverance. Fortunately, the X-ray destroys most of these parasites in a relatively short time, but even after apparent destruction, there may be a return. Prognosis should be guarded and the difficulties explained, so that no spectacular results will be expected, for they rarely arrive.

Amebic Dysentery

Amebic dysentery was at one time regarded as a tropical disease. It is now fairly familiar to most men in active practice. The one characteristic that may be overlooked, is the fact that sometimes it becomes latent with an apparent recovery, only to recur months or even years later. An unexplained liver abscess may form long after most events of tropical residence have been forgotten. The reactivation may appear among men, a considerable time after discharge from the services, who have had a mild dysentery in the tropics, although symptom free for months. Any intestinal or digestive disturbance appearing in such men, should be carefully checked for the dysenteric ameba, which for some mysterious reason, has become reactivated. A reinfection is possible, but I have seen a number of recurrent cases including one in my daughter and one in myself, where no reinfection was at all probable, yet the active amebae reappeared. This is believed to be a real problem.

Intestinal Worms

A reminder that intestinal worms are practically universal in tropical popula-

tions that have not been freed by science, may help clear up some obscure cases. Our men who have been infested, usually, are promptly cleared of worms but occasionally the process has not been complete and a few remain to carry on the infestations. Some intestinal worms may exist in the digestive tract for years, so it will be well to check the stools for worm eggs, if there are obscure digestive symptoms.

While I have no fear of any marked increase in our medical problems after our men are all home, there will be occasional exotic diseases, and some of these may tax our diagnostic ability. If we can determine the cause, usually the remedy can be found. If we are alert to such possibilities I feel confident that few conditions will remain undiagnosed

640 The Alameda

Rheumatoid Arthritis

By T. DEWEY DAVIS, M.D., Richmond, Virginia

In rheumatoid arthritis, we have been led astray by our search for the etiologic agent and for a brilliant therapeutic agent.

The disease presents obvious widespread evidence of physiopathological disturbances. A strain of streptococci recovered from the blood streams of patients with active rheumatoid arthritis gave aid to the concept of bacterial etiology; this was supported by the demonstration that many patients carried agglutinins in their blood for this particular strain. Results in treatment with a vaccine made from this special organism have not been consistently good.

The role of focal infections (teeth, tonsils, sinuses) apparently is a comparatively unimportant one.

Allergy may explain some of the phenomena. The endocrinologists and nutritionists have pointed out changes, which appear to be the result of the disease rather than the cause.

The obvious evidence of nervous system disorder in rheumatoid arthritis sufferers has led to a psychosomatic approach. The medical literature repeatedly suggests that the neurotic, viscerototic, asthenic type of individual is most apt to fall victim.

Investigators have suggested that the degenerative changes in and about the joints are the result of prolonged vascular spasm. It is logical to consider that the rheumatoid arthritic patient has inherited a definite defect in his joint structures, along with instability of his involuntary nervous system, which permits many exciting factors to cause the actual joint changes. Rheumatoid arthritis is prevalent in temperate zones where wide variations in climatic conditions exist. Changes in the skin temperature

may be associated with general disturbance of vasomotor control.

The psychosomatic etiology gets further support when we consider the previous therapeutic approaches, such as: Elaborate physical therapy equipment, psychologic effect of removal of foci of infection, the vitamin fad, and the four most popular modes in the last 20 years; foreign protein, vaccines, sulfur, and gold, all of which are administered with a needle.

Sulfur treatment possessed distinct possibilities with its impressive analysis of fingernail clippings to substantiate its need in the individual's economy.

Gold has a definite therapeutic effect on the rectiulo-endothelial cells and is apt to be found in some concentration about the joint structures, but this work is not convincing. It has given good results in patients whose mental makeup is that usually amenable to psychotherapy.

Proposed Regime

1. Be alert for the earliest stage and begin therapy before irreparable damage is done to the joint structures.
2. Strive to implant an optimistic spirit.
3. The prolonged rest in bed during the acute stage should be accompanied by passive exercises, heat and massage, and orthopedic measure to prevent or correct deformity, together with analgesics and sedatives to promote comfort and rest.
4. A well balanced diet should be taken. Transfusions of whole blood, until the red cell count approaches normal, not only correct the usual anemia but are helpful in improving the malnutrition.
5. Obvious foci of infection should be removed or drained.

Practical Points in Psychiatry

(From Army and Civilian Experience)

By LT. COL. CLARKE H. BARNACLE, M.C.

Seventh Service Command

Omaha, Nebraska

NORMAL personalities break down in combat. Anyone can break down mentally if enough pressure is applied for a sufficient length of time.

Functional conditions for breaking in medical and surgical patients: The psychiatrist must understand himself before he can understand others. He must have no conflicts. A patient may have either a physical or psychic condition, or a combination of these factors. It is wrong to suppose that he must have *only* an organic disease or a functional disease. The diagnosis of psychic conditions cannot be made by exclusion. Even with a negative physical and laboratory examination it should not be concluded instantly that a functional condition is present.

An adequate history must be taken or one will not be able to understand the patient and how he reacted in the past. Do not over-examine the patient, as it fixes his mind on his condition. Do not give him a special diet or medicine or the same result will follow. The temporary use of sedatives, as a temporary crutch, may be permitted if the patient is informed as to what he is being given and why.

The physical examination must be complete and carefully performed or the patient will have no confidence in the physician.

Never tell the patient he has a "psycho neurosis." Just tell him he is nervous or use some other common word.

Wrong Conceptions Held By Some Physicians:

1. Psychic reactions occur only in abnormal people.
2. Malingering is common.
3. Any psychosis is permanent.
4. A neurotic soldier can be forced into becoming a good fighter.
5. Psycho-neurosis is a conscious step designed to release the patient.

We are all living in equilibrium with various forces including self-preservation, early training, environment, religion, patriotism and any force that threatens our security. Our early train-

ing determines our adult response to people and conflicts. Homesickness leads to many symptoms, including headache and nausea. Anxiety or worry leads to physical manifestations such as hysteria, amnesia or paralysis. Long continued anxiety leads to clinical pathology including high blood pressure, ulcers of the stomach, and chronic skin conditions. Symptoms and neurotic symptoms protect the individual. He receives care and is released from his duty or work and may receive money as a benefit or compensation. Life is made more pleasant in sickness than in health because of these compensations.

Concerning the out-look for military personnel, these facts have been established:

1. The more stable the personality previous to the onset of the psychosis, the better the prognosis.
2. The shorter the time until the psychosis is under treatment the better the prognosis.
3. The closer the psychosis is treated to the battle lines, the better the prognosis.

A good doctor-patient relationship must include knowledge of the patient, and his history, and the patient must have time to talk. Often the patient will tell why he is sick, what he has been, what he has and what he expects to be, his ambitions and failures.

Team work among doctors and treating of all types of patients is of value. Intelligent comparison, will, with discussion of facts by both parties, result in great advancement for both patient and doctor. Psychiatrists might make regular rounds on other services.

Malingering is the intentional stimulating of illness in a person who is physically and psychiatrically normal. A true malingerer is conscious that he is pretending to be ill. Malingering is rare in this war. Much more common is poor morale-resentment, such as displayed by returning veterans from overseas, and the soldier with personality defects (constitutional psychopathic). A middle course must be taken between coddling the soldier and using a harsh, uncompromising attitude.

* Abstracts by Dr. R. L. Gorrell, from a paper presented at War time Graduate Meeting, Denver, Colorado, Mar. 17, 1945.

Acute psychosis are treated with:

1. Rest
2. Shock treatment (electric or insulin shock therapy, especially for panic and anxiety).
3. Sedative drugs, including intravenous Pentothal.
4. Program of activity, including recreation and occupational therapy.
5. Hydro-therapy (cold wet packs are used instead of sedatives).
6. Change of environment.
7. Free discussion.
8. Group discussion helps to orientate the patient and to show him that other men are similarly affected.

No long hospitalization is permitted.

As the soldier is discharged from the army, he should be given a clear idea of what his condition is and what to expect. He is told that he is "nervous" or "jittery" and referred to a civilian physician or clinic. Chronic neurotic care is given by the veteran's Administration.

Fear

The soldier who is afraid is told that it is a normal reaction, the instinct for self-preservation, that he is not a coward, and that practically everyone has the same fear. The psycho-therapy is carried out within one to five miles of the battle lines. One-half of the men so treated go back into combat.

Bullis Fever*

Its Importance to Southwestern Physicians

By COL. J. C. WOODLAND, M.C., and COL. H. R. LIVESAY, M.C.
Fort Sam Houston, Texas

BULLIS FEVER has been diagnosed in 700 soldiers seen in our hospital. This tick born disease may spread to the great southwestern United States.

1. Leukopenia
2. Lymphadenopathy (generalized)
3. Tick bites

Clinical Characteristics

Tick bites are found in 100 percent of patients. Enlargement of all lymph nodes is found in 100 percent of patients. Neutropenia is characteristic. The spleen is enlarged in one-fifth of patients. A maculo-papular rash appears in one-fifth. Hemorrhage, or marked injection, of the conjunctiva occurs in one-sixth.

Course

Recovery is almost the rule. One patient died with a sore throat (agranulocytosis?—Ed.). One patient had a complicating encephalitis which required the use of a respirator for 10 days. No treatment, including penicillin, was effective.

Diagnostic pointer: If typhus is suspected, yet the Felix-Weil reaction is negative, consider Bullis fever.

In Texas, one must differentiate spotted fever, endemic typhus, and Q

* Notes by R. L. Gorrell, M.D., taken at the War-Time Graduate Meeting, Fitzsimons General Hospital (U. S. Army), Denver, March 15, 1945. Col. Woodland, is Chief of Medical Service, Brooke General Hospital, Fort Sam Houston, Texas, and Col. Livesay, is Chief of the Eighth Service Command Laboratory of the same institution.

fever. All four diseases were given to guinea pigs, with a typical resultant fever curve for each disease. There is no relationship between them, as immunity for one did not provide immunity for any one of the others.

Etiology: Rickettsia-like organisms, which are transmitted by ticks. Investigations showed that one deer had 1,500 ticks on its head alone; one trapping on a plot of ground 10 by 12 feet yielded 3,000 ticks.

Discussion

E. R. Mugrage, M.D., Professor of Laboratory Diagnosis, University of Colorado School of Medicine: Little is known about the animal reservoir for virus or rickettsial diseases.

Col. Livesay: Q fever is very highly infectious to laboratory animals and to personnel. It is often difficult to diagnose. The complement fixation test, alone, is not adequate. For a definite diagnosis, one must find the organisms in the patients blood.

Col. Woodland: Q fever is associated with a marked pneumonitis. Bullis fever is never so associated. Immunity to one disease does not protect the laboratory animal against another, thus indicating that each is a distinct disease. We feel that we have evidence to support our contention that Bullis¹ fever is a clinical entity.

¹ First so named because the cases appeared at Camp Bullis, Texas.

The Cure of Calcific Deposits in the Shoulder by Physical Medicine

By JOSEPH ECHTMAN, M.D., New York, N. Y.

CALCIFIC deposits in the shoulder (also known as calcified subdeltoid or subacromial bursitis) are of very common occurrence. Patients suffering from this condition are usually seen by the surgeon or the orthopedist. These practitioners assure us that surgery is the only method for their relief or cure.

However, the condition can be managed most successfully by physical medicine. In employing surgical procedures, there is the occasional risk of causing permanent damage. We have seen patients operated upon for calcific deposits by the best surgeons with permanent disability of the shoulder resulting. It is because of such mishaps that some surgeons object to surgical procedures in this condition. Indeed, Ernest A. Codman of Boston, one of America's greatest surgeons and an authority on bursitis, was always opposed to surgery for calcific deposits. All his life, he endeavored to find a non-surgical method for their cure, but failed; when the patient's suffering became unbearable he operated because there was no other method that would give relief.

Physical Medicine

Today physical medicine offers definite measures for the cure of the deposits in a safe and painless way. Many years of research, experimentation and observation coupled with sufficient experience have resulted in definite knowledge of the effects of physical therapy modalities on symptoms and pathologic changes. The physical therapist, knowing these effects, cannot fail to relieve or cure certain clinical conditions. This is especially true of calcific deposits which give rise to pain and discomfort.

It should be mentioned here that symptomless calcific deposits may be found roentgenologically in shoulders of many people. Due, however, to some factors, of which trauma is the most constant, they may suddenly or gradually become inflamed and give rise to very severe pain and great disability, lasting, if untreated* for many weeks, months and even years.

*The calcific deposits may be cured spontaneously, but this is rather the exception and not the rule. On the contrary, many cases get worse and worse, if not treated.

Forms of Therapy

There are three recognized forms of therapy employed today for the treatment of the deposits: Opening of the deposits surgically; "needling"; and physical medicine. The former two methods are accompanied by risk and pain. The latter, physical medicine, gives the best results being at the same time accompanied by no risk or even the least pain. In the employment of any of the three forms of therapy, one has to cope with the following four clearly differentiated items: The acute pain which is often very severe, the deposits, adhesions, and muscular atrophy. In this editorial, because of lack of space, only the treatment of the pain and the deposits are discussed.

Treatment of Acute Pain

In the management of the acute pain, no heat in any form is employed. Hydrotherapy in the form of cold Priessnitz compresses may be of advantage. The author observed that the best and most certain method for the control of the pain is ionization with magnesium sulphate. Employing various drugs in ionization research (in his physical therapy clinic at the Mount Sinai Hospital, New York City) on many thousands of patients suffering from a variety of disorders including calcific deposits, he found that the magnesium ion transfer offers a definite treatment for the relief of the most agonizing pain in acute bursitis with calcific deposits.

Technic of the ionization: Prerequisites are a galvanic apparatus, a cool 1% solution of magnesium sulphate, gauze or toweling, metal, and bandages. Prepare a pad of gauze of a thickness of fifteen to twenty layers, or eight layers of toweling, and of a size large enough to cover the shoulder to be treated, approximately five inches by seven inches. Place the gauze in the cool 1% magnesium sulphate solution, wring it out and apply it to the shoulder, covering especially the entire region of the inflamed bursa. Place on the gauze a piece of block tin, approximately three inches by five inches. Both the gauze and the metal constitute the active electrode. It is held in place by a bandage. The metal is attached to the positive pole of a gal-

vanic apparatus. Prepare another electrode, the inactive electrode, in the same manner, except that it is larger, the gauze being seven inches by ten inches and the metal piece four inches by six inches, and soak it in plain warm water. It is placed over the region of the spine opposite the affected shoulder, or the patient may sit on it if on the same side of the body as the shoulder treated, to avoid crossing of the current. The metal of this electrode is attached to the negative pole. The current which is straight galvanic, is now opened and gradually increased to the patient's tolerance. We usually allow one to two ma. for each square inch of the metal piece of the active electrode. Time allowed is twenty to forty-five minutes.

After the seance is completed, the gauze on the shoulder is left in place undisturbed as a "compress"; the metal is, of course, removed. It is covered with oiled silk, over which cotton or flannel may be placed if the weather is cold, and held in place by a bandage. The patient with this compress on his shoulder is sent home after being instructed to return the next day for the same procedure. He is instructed to keep the compress moist and cool by dropping cold water into it now and then. Four to six treatments are usually sufficient to control the most severe pain in the acute stage.

Absorption of Calcific Deposit

Now that the pain is under control, we proceed with the treatment to cause the absorption of the calcific deposits. For this purpose thermal energy is employed. What is the most useful modality for this treatment? Some thought the answer was short wave, others suggested infrared radiation and so on. However, careful observation and extensive clinical experience have convinced me, that of all the armamentaria which are capable of causing absorption of calcific deposits, such as x-ray, static electricity, long wave and short wave diathermy, the

most useful one is the long wave or conventional diathermy. It is specific. It is also the safest.

The diathermy technic: Two metal electrodes of equal and sufficient size, four by five inches or larger, are applied to the shoulder, one at its anterior surface, the other at its posterior surface, so that the deposits are between them, and are held in place by a bandage. One of the two wires from the diathermy apparatus is attached to each electrode. The current is opened and gradually increased to the patient's tolerance (800 to 1200 ma.). The time allowed is twenty minutes, which is gradually increased to forty-five minutes.

From twelve to forty treatments are usually necessary for a cure, depending on the size and density of the calcium. The treatments are given daily, or three times a week. If roentgenograms are taken after each series of eight treatments, they will show a gradual diminution of the shadow of the deposits until finally they entirely disappear.

The patient's shoulder is now freely movable and all the symptoms are gone. There is no recurrence. This method is one hundred percent safe and painless and offers one hundred per cent results at least in ninety five per cent of cases.

References

1. Echtmann Joseph, Subdeltoid Bursitis, *N. Y. S. J. M.*, 36:654 April 1, 1936.
2. Echtmann Joseph, The Non-surgical Treatment of Calcified Bursitis: A Definite, Safe and Painless method, *Med. Rec.*, 156:673, November 1943.

1175 Park Avenue

Discussion

By injecting the most tender point with one per cent procaine solution, acute pain can be relieved at once in seventy-five percent or more, of cases. After pain is relieved, free active motion of the shoulder increases local circulation, preventing muscle atrophy and aiding in absorption of the calcific deposits.—R. L. G.

COMING ARTICLES

Clinical and Epidemiologic Notes on Undulant Fever
 Rheumatoid Arthritis
 The Treatment of Weak, Painful Feet
 Adrenal Disease
 Diagnosis of Nephritis
 Peritoneoscopy

Editorial

“Closed” Versus Open Staff Hospitals

Because of the condition in which we find hospitals and hospital staffs at present, the word “control” is much too dignified a term to describe the action of the staff. It is in reality a process of elimination which disregards all semblance of fairness; therefore, the phrase “obstruction to the progress of medicine and surgery” is a truer description.

In a democratic form of government, the following is the fair, honest, and legal procedure in controlling, not only the standards of the medical profession, but of all other callings in life: first, national Constitution and laws; second, state constitution and laws; third, county and city laws, all of which harmonize with and conform to each other. For example: the laws of the various cities do not attempt to nullify the federal laws.

In theory, the medical profession is supposed to be governed as follows: first, national organization, the American Medical Association; second, state medical societies; third, county medical societies; then the staffs of the various hospitals. All of these governing bodies, with the exception of the executive staffs of the hospitals, administer their laws in an open court as it were. The person to be examined or disciplined has the privilege of being present to defend himself. This is not the case in the various staffs. The laws formulated by the staffs, most of which are unwritten, are a law unto themselves because, when it pleases the staffs, they nullify not only all the laws of organized medicine but also the laws of city, county, state and nation. For example: the civil laws as well as the laws governing organized medicine state that a doctor who is properly qualified, that is, a graduate of a recognized school and authorized by a state board of health, and who has a good reputation is permitted to practice medicine, surgery, and obstetrics.

Now comes the executive staffs of at least 90 per cent of the hospitals of the United States in a very under-handed way, without giving any plausible reason, without the presence of the doctor under consideration and nullify all the

laws by plainly stating that Dr. So-and-So cannot practice medicine, surgery, or obstetrics in these hospitals. This obstruction to fair and honest practice of medicine amounts to the following: a patient, regardless of the fact that he or she may have been the largest contributor to the building and maintenance of a certain hospital, is many times refused hospitalization because his or her doctor does not happen to be a member of the staff of that particular hospital. If this same patient becomes dangerously ill, suffering severe pain, he can go right ahead and die as far as the executive staff of the hospital is concerned, unless the patient discharges the doctor in whom he has confidence and accepts a total stranger just because he happens to be on the executive staff of said hospital.

So diabolical is this method of stealing patients that it violates even the common laws of ethics found in the medical profession. This case was well illustrated in the District of Columbia suit, United States of America vs. American Medical Association under date of January 18, 1943 in which a doctor was eliminated from all the hospitals in that city; notwithstanding the fact that the doctor was of a high moral character; had five degrees from higher institutions of learning; had post-graduate work in the school of the University of Pennsylvania where he received his master's degree in surgery; had an excellent record at Worcester City Hospital and many other qualifications, as well as a member of the American Medical Association. In fact, there was not a single surgeon on all the staffs in the District of Columbia who was better qualified to do surgery than this doctor in question regardless of the fact that he was associated with the “Group Health Association.” This kind of control is a hindrance as well as a disgrace to the medical profession.

In my opinion, professional standards could be maintained and honorably controlled by the following method:

All members of organized medicine who have the proper medical training, whose morals and standing in the community are good, should be permitted

to do whatever work he chooses to do, in any hospital the same as he does in his office and the city in which he lives.

There should be an efficiency record kept on all doctors doing work in all hospitals, much the same as is done in the United States Army. This record should be available to any member of organized medicine. The clinical charts, including all laboratory findings, autopsies if there be a death, would show whether the operation was indicated or not. They would also show the skill of the operator.

A close check should be made on the honesty of the doctor with his patients. If any doctor should be found deficient, his record should be laid before him. If the offense is too great, he should be given an opportunity to correct his errors. A gross error should deprive him of further privileges in the hospital and if the violation justified it, he should be expelled from organized medicine.

Under no circumstances, should this power of discipline be invested in any hospital staff. The members of the staff, as well as any other doctors, should have the privilege of investigating the record of any doctor and to report to the county medical society; but this should be their limit.

A committee functioning under the jurisdiction of the county medical society should be the only group who should have this power of disciplining any doctor. In case the doctor against whom the action had been taken considered the decision of the county committee to be unjust, he should have the privilege of presenting his case before the county medical society at an executive meeting.

In a few words, the high standards of the medical profession should be controlled entirely by the merit system and not by a kangaroo court held in secrecy. —JAMES W. GRAHAM, M.D., Kansas City, Mo.

Don't Give Up a Patient

"There is no such thing as a corpse till the funeral. As long as there is blood to pour in and a vascular system to pour it into, a man can be kept alive and reasonably fit while his injuries are repaired, if repairable." So writes W. H. Ogilvie, Consultant Surgeon to the British Army in East Africa (*Surgery, Gynecology and Obstetrics*, March 1944).

"Wounded men die from hemorrhage, shock or infection; in the first two hours

from hemorrhage, in the first two days from shock of which hemorrhage is the chief cause, later from infection."

"One soldier had 58 pints of blood and serum poured into him in 4 days; at the end of 10 days, he was in good condition."

In the past, it has been accepted that two or three pints of blood constituted a maximum of effort. Given a sound cardiovascular apparatus (and it must be remembered that most cases dying formerly of "heart failure" died of shock and lack of enough circulating blood), a patient may be carried on despite very severe hemorrhage and widespread injuries.

Freedom is that faculty which enlarges the usefulness of all other faculties.—IMMANUEL KANT.

Neostigmine for Pain and Spasm

Kabat (Public Health Reports, Dec. 22, 1944) reports that the subcutaneous injections of neostigmine, in dosages of 2 cc. 1:2,000 solution (1 mg.), together with atropine sulfate gr. 1/100 (0.65 mg.) or gr. 1/150 (0.43 mg.) once or twice daily, relieves muscle spasm, muscular pain, paresis and contracture, in many instances.

These cases were benefited: 1. Stiffness, weakness and pain following fractures, 2. unrelieved ankle sprain lasting almost 2 years, 3. joint stiffness, pain and weakness following chronic infections, 4. phantom leg pain (pain after amputation).

Patients with hemiplegia, facial palsy and cerebral palsy were aided to some extent by relieving spasticity, increasing range of passive motion and decreasing deformity. There was also relief from muscle pain and definite increase in power of voluntary motion.

Chronic rheumatoid arthritics obtained improved range of motion and freedom from pain, in many cases.

Neostigmine apparently causes a relaxation of muscle spasm or contracture.

If these dramatic claims are proven, neostigmine may be used for a wide variety of painful conditions seen by any physician or surgeon (lumbago, sprains, after care of fractures, painful backs, bursitis at the shoulder joint, arthritis). As shown by the relief following procaine injections into tender areas, it is the pain and muscle spasm which cause limitation of motion, further spasm and increased pain. This vicious circle can be stopped.—R. L. GORRELL.



GRADUATE COURSE

Volkmann's Contracture*

Many of the country's leading orthopedic surgeons and texts furnished the material that makes up this symposium. The drawings are all original; that on stellate ganglion injection by T. Lozier, staff artist of CLINICAL MEDICINE, that on late results of Volkmann's contracture by Miss Ruth Cunniff.

A surprisingly large number of cases of this contracture were seen in a crippled children's clinic and it was felt that nowhere was all the necessary material gathered together and summarized.

This complication is rare in the practice of each surgeon and general practitioner, but is comparatively common

*A Symposium on Prevention and Treatment by the Editorial and Consultant staff of CLINICAL MEDICINE.

Anatomic Mechanisms: One or both may be present simultaneously

1. Arterial obstruction causing ischemia.

The artery is pulseless, and in spasm, injured or torn, or compressed by bone fragments.

2. Hemorrhage and swelling causing ischemia.

The flexor fascial space is closed like a box and its contents, under swelling, have the blood pressed out (Bunnell).

Operative Findings: One or both may be present

1. As above, with a pulseless artery due to spasm, injury, compression or angulation of the artery. (See Fig. 5) which indicates compression of the artery against the tight fascia of the elbow.

2. The fascia in front of the elbow is tight and spreads widely on being split. After incision, muscles are forced from the wound. Fig. 5 indicates the edema and a hematoma beneath the fascia.

Early Symptoms

1. Decreased oscilometric pulsations is the earliest sign.
2. Weak or absent pulse.
3. Cool, cyanotic or pale hand.

Later Symptoms

4. Pain; (if a nerve lesion is associated, no pain may ever be felt).
5. Tense swelling in region of fracture (See Fig. 6).
6. Pain on passive extension of the fingers; inability of patient to extend fingers freely (See Fig. 12).

Chronic Stage (Fixed Deformity)

Fig. 11 shows the end results of this crippling condition. Differential diagnosis must include the claw hand of a median and ulnar palsy or the dropped wrist or fingers of a radial or posterior interosseous nerve lesion; these lesions may exist in the same extremity with an ischemic contracture.

Treatment

1. Remove all splints and adhesive strapping and extend the arm.

2. If the pulse is not strong and the extremity warm and pink, incise the fascia

cial space (as shown in Fig. 6, 7, 8, 9) to evacuate a possible hematoma, relieve pressure in the tight fascial space, and to explore the fracture and vessels. Then:

3. Reduce the fracture.

4. If the artery is angulated or compressed by the bony fragments, free it. If it is in spasm and pulseless, inject the stellate ganglion with procaine solution (Fig. 1, 2, 3, 4) or excise a segment of the artery between ligatures.

5. Suture the skin, not the fascia.

6. Repeated stellate injections may be

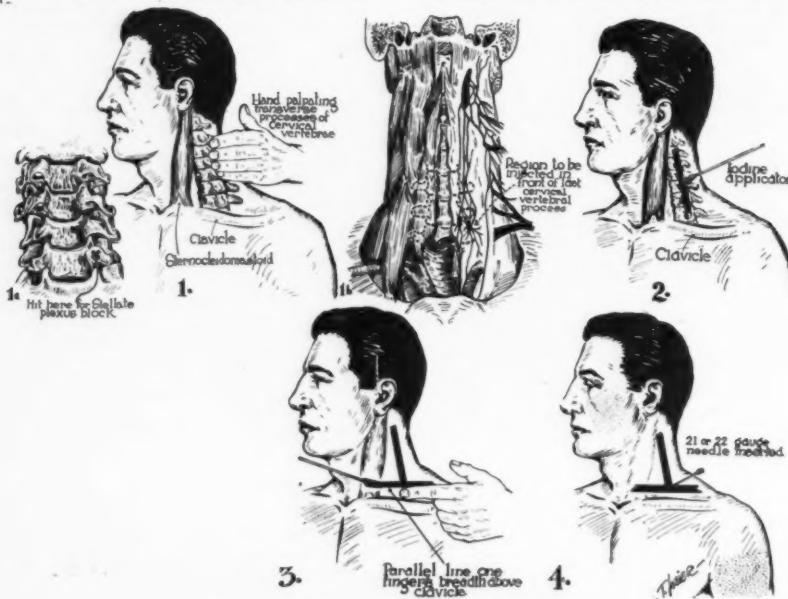
**Injection of the Stellate Ganglion**

Fig. 1. The landmarks to be identified in injecting the stellate (sympathetic) ganglion in the neck. By having the patient turn his head to the opposite side, it becomes possible to palpate the transverse processes of the cervical vertebrae.

Fig. 1a. The small insert shows the cervical vertebrae and the transverse processes which lie behind the sympathetic trunk. (Adapted from Sobotta's "Atlas of Anatomy"; Stecher).

Fig. 1b. Insert showing the location of the sympathetic trunk in the neck. The thin, flat prevertebral muscles separate the sympathetic trunk from the transverse processes of the cervical vertebrae. (Adapted from Grant's "Atlas Anatomy"; Williams and Wilkins).

Fig. 2. A vertical line is drawn along the palpable transverse processes with a cotton-wrapped applicator dipped in iodine.

Fig. 3. A horizontal line is drawn one finger's breadth above the clavicle and parallel to it.

Fig. 4. At the juncture of these lines, a long slender needle (gauge 21 or 22, 3 inches in

length) is inserted gently down to the transverse processes. When it strikes bone, it is slightly withdrawn so as to be free of the thin prevertebral muscles (shown in Fig. 1b) and 10 cc. of 2 percent procaine solution injected.

At the end of five minutes, the hand on the same side is warm, pink and dry. A Horner's syndrome is often evident (flushing and dryness of cheek on same side, sinking in of the eye, ptosis of the upper lid, small pupil or miosis).

Note: The anterior approach to the stellate ganglion by injecting down on the sixth transverse process and then following the upper edge of the transverse process until it hits the body of the vertebra is the simplest method of all. We have had fair luck in teaching it to residents, although a miss will occasionally occur. If one stays away from vessels and the apex of the pleura, there should be no undue reaction. (Personal communication from G. de Takats, Northwestern University, Chicago).

needed to keep the extremity warm and pink.

Prevention

1. Do not apply splints, adhesive tape or appliances to forearm, elbow or upper arm fractures unless:

- a. The radial pulse is palpable and strong.
- b. The fingers are warm and pink.
- c. Severe pain is absent.
- d. Numbness and tingling of the fingers are absent.
- e. A tense swelling is absent.

2. If the pulse diminishes or disappears following reduction or after flexing the arm, place the arm in extension. If the pulse does not become strong, explore the fracture site.

3. It is better to have a usable arm and a poorly reduced fracture than vice versa.

4. Don't use gradual reduction by skeletal or other traction because "of the time which will be lost should it fail" (Griffiths).

5. "Don't perform an open reduction

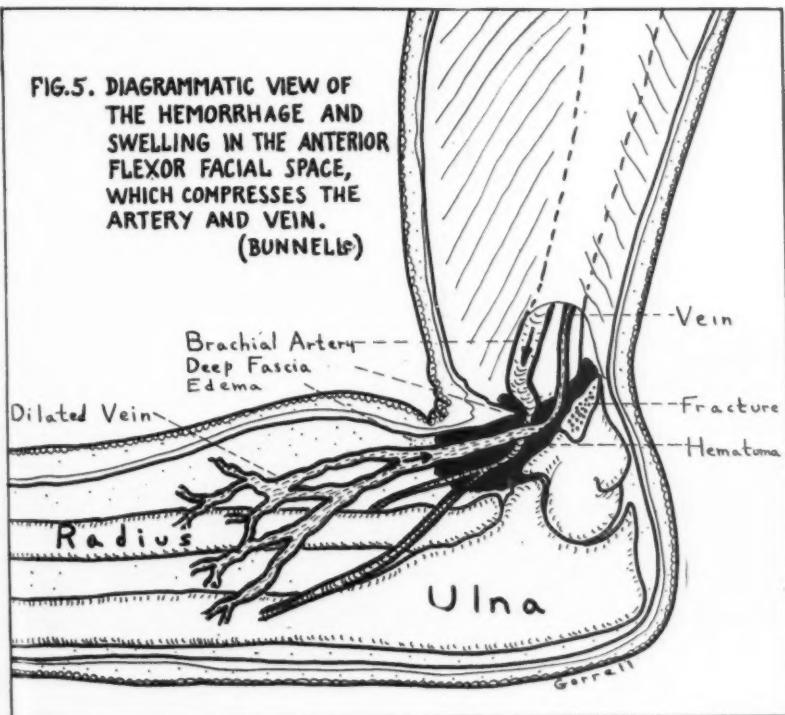
without exploration of the vessels" (Griffiths). "If the fracture has been reduced or is irreducible and the radial pulse remains absent, one must be guided by the circulation in the hand. If this is demonstrably intact, with a warm, pink hand, a rapid circulatory return and satisfactory oscillations, the arm should be slung at the right angle, and watched. If not, the arm should be operated upon at once . . . Intravenous papaverine relieved arterial spasm in one case . . . Excision of a segment of damaged artery has been *very* effective when performed within 24 hours of the injury."

Discussion

By D. De TAKATS, M.D.
Chicago, Ill.

It is fundamentally a neurovascular lesion in which the pressure of a sub-fascial hematoma, irritation of the peripheral nerves, and spasm of the brachial artery all play a role. Of course, improper splinting has a lot to do with it, but these contractures also occur without splinting.

FIG. 5. DIAGRAMMATIC VIEW OF THE HEMORRHAGE AND SWELLING IN THE ANTERIOR FLEXOR FACIAL SPACE, WHICH COMPRESSES THE ARTERY AND VEIN. (BUNNELL)



If the hematoma is large, the fascia should be opened. To overcome the extensive vasospasm the artery can be stripped or a sympathetic block of the stellate ganglion can be done. These measures obviously have to be done very early, since the late stages will not respond.

Discussion

By J. E. MILGRAM, M.D.
Clinton, Iowa

Volkmann's ischemic contracture was originally believed to result in many cases from abnormal elbow flexion being maintained after a fracture or from application of tight cast or from constricting splint or bandages (as a consequence of external pressure). It has become apparent that cases developed without any flexion of the elbow or bandaging. It was found that hemorrhage continuing in the deep enveloping fascia, of the forearm, was followed by Volkmann's ischemic contracture. It was observed that incision of the deep enveloping fascia, releasing tension on the forearm muscles, was followed by return of function (if performed early enough, usually within the first 24 hours).

I had two cases of supracondylar fractures in which, despite reduction, the pulse disappeared soon after swelling increased. On incision of the forearm, the muscles swelled up and herniated through the wound. There were deep masses of clots. Several hours later, the

pulse reappeared at the wrist. One patient was left with a finger muscle contracture involving the index finger alone indicating the fact that this would have been a severe ischemic contracture.

To this group of forearm swelling has, in recent years, been added the knowledge of still another group resulting in the same contracture, due however to injury of the brachial artery usually by the fracture edge at the supracondylar site. Reflex spasm occurs involving the arterioles and venules and diapedesis occurs through the walls of these small vessels resulting in exudate. It is this exudate which, when organized, forms the terrific scar of this group. In these cases, the pulse may be absent but collateral circulation remains intact. The hand is usually flaccid and livid; there is no contracture of the fingers early in contradistinction to the first type of Volkmann's mentioned in which the infiltration of the muscles in the forearm early causes flexion contracture of the involved fingers. The treatment of the two groups is unsatisfactory. Sympathetic block by novocaine has been tried with fair success and stripping of the brachial artery similarly attempted — even excision of the artery, for the collateral circulation is sufficient, but by and large the best thing that can be done is to accurately reduce the fracture, put the arm up in not too much flexion and probably incise the fascia of the forearm. Unfortunately, it is frequently dif-

FIG. 6. THE TENSE BULGING HEMATOMA THAT NEEDS INCISION.

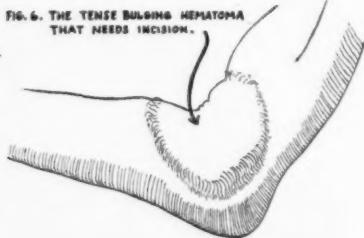


FIG. 7. SUGGESTED INCISION, PARALLELING THE FLEXION CREASE AT FOLD OF THE ELBOW. (BUNNELL)

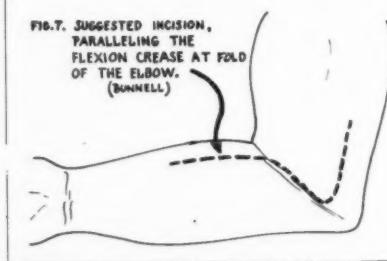


FIG. 8. THE DEEP INCISION IS MADE ACROSS THE FASCIA.

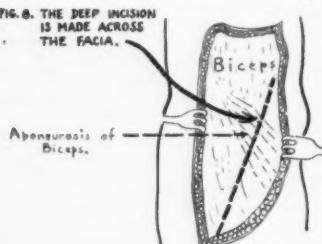
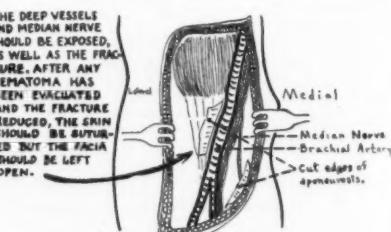


FIG. 9. THE DEEP VESSELS AND MEDIAN NERVE SHOULD BE EXPOSED, AS WELL AS THE FRACTURE. AFTER ANY HEMATOMA HAS BEEN EVACUATED AND THE FRACTURE REDUCED, THE SKIN SHOULD BE SUTURED BUT THE FASCIA SHOULD BE LEFT OPEN.



ficult to retain reduction without considerable flexion and Dunlop's method of simply suspending the arm from a table, is probably as good as any to be used in conjunction with fascia incision and possibly sympathetic block. Most of these measures have to be carried out within approximately the first twenty-four hours if they are to be of much value. Once the damage is done, splinting of the fingers in extension is essential but contracture develops frequently none the less. Often the median or ulnar nerve has been injured and sensory changes are followed by trophic pressure point at point of splint application.

Discussion

By EDWIN W. RYERSON, M.D.
Chicago, Ill.

Volkmann's ischemic paralysis is due to interference with the circulation, either by a deep hemorrhage or by direct pressure of the fragment upon the brachial artery.

Early aspiration of the extravasted blood, or, in severe cases, incision through the deep fascia, would prevent the degeneration of the muscle fibers, but in most cases the need for such intervention is not realized by the attending surgeon.

The most effective later treatment is the gradual stretching of the contracted flexor muscles by the method described

by Sir Robert Jones. If this fails, operative shortening of the radius and ulna usually produces better results than plastic lengthening of the flexor tendons, because of the difficulty of preventing adhesions in the tendon sheaths.

Discussion

By THEODORE A. WILLIS, M.D.
Cleveland, Ohio

I believe that the contracture is due to fibrosis of the soft tissues resulting from disturbance of circulation. It is usually caused by mechanical interference with the venous return of blood and is much more easily prevented than cured.

In the early stage, the pressure must be released either by change in the position of the part, or, if this is not successful, by incision and drainage of the collected fluid. In the later stage, I have been treating the condition by the old method of gradual stretching of the affected muscles, heat and encouragement of active motion.

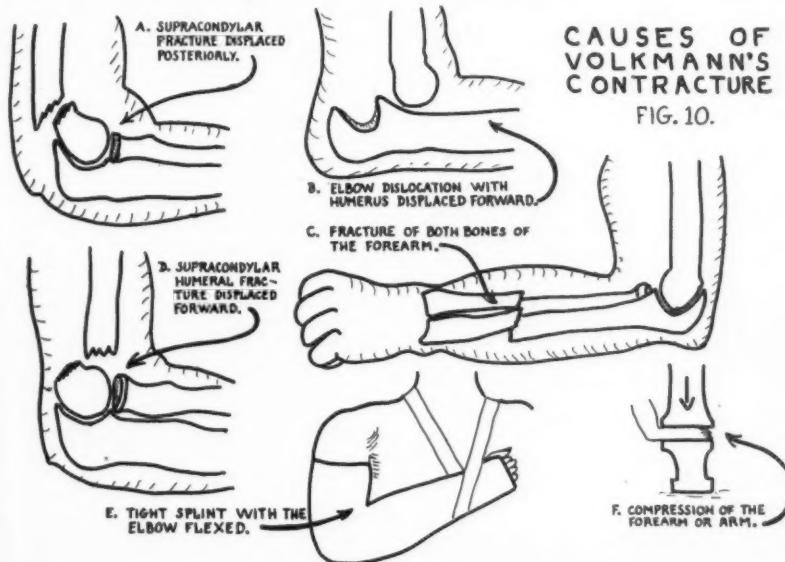
Discussion

By ROBERT D. SCHROCK, M.D.
Omaha, Neb.

It is my feeling that the vascular obstruction is a major factor and that obstruction to venous circulation is as important as the arterial. The compression of radial and median nerves, particularly the vasoconstrictor fibers, play the greater part.

CAUSES OF VOLKMANN'S CONTRACTURE

FIG. 10.



Prevention of the condition means close attention to avoid any compression in the antecubital space. Pressure from without by splints or hyperflexion may cause the condition. If pressure from deep within the antecubital space is great, early incision with liberation of the retained blood will frequently diminish the severity of the lesion.

Discussion

By STERLING BUNNELL, M.D.
San Francisco, Calif.

As regards Volkmann's ischemic contracture, the closed fascial space to which I referred in my book is that contained by the deep fascia of the anterior aspect of the forearm and bounded posteriorly by the radius, ulna, and interosseous membrane. It runs from the carpal ligament to the elbow. To perform fasciotomy in impending Volkmann's, the fascia can be uncovered and slit through an incision up the center of the volar part of the forearm to the elbow (Fig. 7). It should not cross the flexion crease of the elbow, but should then run along the latter to the medial aspect of the elbow and then a little up the upper arm. This will give enough exposure to decompress the muscles and explore the blood vessels at the elbow without causing a flexion contracture spanning the elbow.

Discussion

By PAUL B. MAGNUSON, M.D.
Chicago, Ill.

In my experience, the cause of Volkmann's ischemic contracture is overacute flexion of the elbow with swelling present, especially in the flexor surface, which results in a compression of blood and nerve supply.

Prevention is the best form of cure. If it is seen that the fingers become swollen and the nails bluish within an hour or so after the fracture is put up in flexion, the immobilization can be



Fig. 11. Drawings show the deformity resulting in late cases of ischemic contracture.

removed and the arm straightened out, put in full extension with traction on the forearm. It has been my experience that most of these things can be reduced in a week or ten days after fracture, after the swelling has gone down, if necessary. Draining massage can be added to this, but usually suspension with the hand high over the patient's body is sufficient; the patient is encouraged to use the hand, as a matter of fact is made to use it regularly and consistently throughout the day.

After contracture has occurred, I know of no method of treatment that really gives a good hand and arm, unless, of course, the condition has been stopped in the early stage, and then there is frequently automatic recovery.

Discussion

By J. ALBERT KEY, M.D.
St. Louis, Mo.

I believe that Volkmann's paralysis is, as a rule, due to the obstruction of the venous return in the extremity. However, I have seen instances in which it followed occlusion of the brachial artery at the elbow. This was combined with obstruction of the venous return. In the early stages, I think that the most effective method of treatment is wedging plaster which is reapplied and followed by night splints to prevent recurrence of the deformity.

Discussion

By HERMAN C. SCHUMM, M.D.
Milwaukee, Wis.

I believe that Volkmann's ischemic contracture is caused by hemorrhage within the fascial sheath of the flexor muscles of the forearm. As the result of this pressure the individual muscle fibres undergo death and replacement by scar tissue.

These cases can be effectively treated in the early stages by careful super-

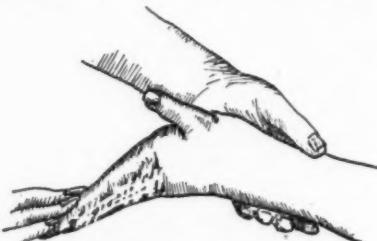


Fig. 12. Testing for developing Volkmann's contracture; extending the fingers, actively or passively, is painful. If the tenderness is present, immediate exploration should be carried out.

vision and at the first suggestion of increased pressure (which usually manifests itself by: 1. absence of the radial pulse, 2. very severe pain and, 3. some beginning contractures of the fingers) if the fascia overlying the flexor muscles is divided longitudinally permitting the blood to escape. This method is usually effective up to the end of sixty hours.

Discussion

By FRED W. HARK, M.D.
Chicago, Ill.

There are three theories, venous obstruction, arterial obstruction, and sympathetic nerve damage. I believe in all three, having seen cases in which I proved to my satisfaction that each of the theories can be responsible, 1. arterial spasm, 2. arterial obstruction, 3. venous obstruction.

I favor cutting the vaginal fascia anteromedially. One pulseless forearm regained the pulse after doing this the fifth day following the fracture. In cases where circulatory embarrassment might impend, I advise facial section even before the fracture is treated. I have done so, once.

I have seen perfect recoveries after severe contractures had set in by repeatedly changing casts to overcome the contractures, followed by months of good physiotherapy.

Discussion

By EARL C. PADGETT, M.D.
Kansas City, Mo.

I think the average ischemic contracture is due to some injury of the arm which causes a blood clot to form beneath the fascia. This puts pressure on the muscle and shuts off the blood supply temporarily and may cause a varying amount of necrosis.

I should say that what you are going to do about it would depend, in the first place, upon how severe it is, and in the second place, how long it has lasted. It may be that by proper splinting you could get the hand in a position that will be the most effective functionally. Sometimes, when this cannot be done, some operation is done on the tendons or bone that will get fairly good results. However, fairly good results are occasionally obtained by more conservative methods.

Discussion

By E. M. MUMFORD, M.D.
Indianapolis, Ind.

In the early stages, I release all possible pressure in the cubitus of the elbow, splint the hand in a neutral position, hot packs and remove splint for frequent active exercises.

Discussion

By CARL E. BADGLEY, M.D.
Ann Arbor, Mich.

I believe that Volkmann's ischemic contracture is due to deprivation of blood supply to the muscle either by vascular occlusion by external appliances, or by internal swelling, or by vasospasm, causing a fibrous transformation of the muscles. As to effective methods of treatment in the early stages of this condition, I believe the most effective is not to utilize acute flexion methods of treatment for fractures of the elbow; instead to use a wire thru the olecranon and overhead traction. When it is making its early appearance, to remove all external appliances with the exception of the wire traction and elevation. Possibly in an occasional case where there is considerable swelling and edema and reaction, division of the fascia should be done.

Discussion

By H. H. McCARROLL, M.D.
St. Louis, Mo.

Most of these cases, I feel, are due to swelling at the site of the injury, usually a fracture which is sufficient to abolish the arterial blood flow. This impaired circulation results in rapid extravasation of body fluid into the muscles and other soft tissues. Actual death of muscle fibers follows. The residual deformity is then due to the destruction of these muscles, the secondary fibrosis and secondary contractures which develop.

Most cases of Volkmann's ischemic contracture follow supracondylar fractures of the elbow. We can go a long way toward the prevention of this complication if we watch the radial pulse closely during the reduction and immobilization of this fracture. The commonly accepted rule that supracondylar fractures of the elbow should be treated in extreme flexion is often the very cause of the circulatory impairment. Such fractures are not infrequently seen where the radial pulse is completely obliterated by flexing the elbow even to 90°. We should be willing always to sacrifice a satisfactory reduction of the fracture in order to maintain a good radial pulse.

The most important point in the early treatment of this condition is its immediate recognition at the time of onset. The first step in the treatment should be the release of all constricting appliances. If the circulation of the extremity is not improved after these have

been released, one should then consider opening the superficial and deep fascia through longitudinal incisions about the elbow joint in order to release the tension in the deeper spaces. The fracture site itself should be exposed and the hematoma evacuated.

The hemorrhage and swelling beneath the fascia about the elbow may be sufficient in itself to impair circulation and this would not be improved by removing the constricting external appliances. This fascia should be opened immediately if the circulation is not improved after the cast, bandage, or splint has been removed. The wound should be drained, closed very loosely or left open, and loose sterile dressing applied. If in spite of these measures a true ischemic paralysis develops, the next measures should be directed toward prevention of the secondary contractures. The hand should be splinted with the wrist and fingers in extension and active and passive exercise should be instituted as early as possible.

Discussion

By EDWARD L. COMPERE, M.D.
Chicago, Ill.

I believe that Volkmann's ischemic contracture results from reduction of the flow of blood through the veins from an extremity while arterial blood continues to pump into the extremity.

Occasionally we see in connection with this condition an injury of one or more of the nerves. If the condition is recognized early and the constriction is relieved, the marked damage to the muscles will be minimized. An incision through the skin and the deep fascia will often decompress and relieve pressure.

It is rare that we have an opportunity of treating this condition at an early stage. Once the contracture is developed, there is no treatment which is very effective.

Discussion

By J. W. WHITE, M.D.
Greenville, S. C.

My feeling is that the contracture is due to the replacement of the necrotic muscle tissue by scar tissue which of course has rather marked contractive force. The necrosis, I think, is due to the disturbance in circulation caused usually by severe injury often about the elbow in children. While I have only had to do it on a few occasions, I would advise generous longitudinal incision down through the fascia into muscle tissue as promptly as possible in cases

where this condition threatens; however, the usual suspension of the arm according to Dunlaps' teaching usually gets us out of difficulty. I recently cared for such an elbow; after 24 hours suspension, the swelling subsided to allow me to successfully manipulate the badly displaced condylar fracture.

Discussion

By EMIL D. W. HAUSER, M.D.
Chicago, Ill.

I believe that it is an ischemia and that there is interference with the blood supply to the muscles, and therefore it can lead to fibrosis of the muscles.

In the early stage, one must release the pressure. Sometimes the pressure is due to extreme flexion of the elbow plus swelling; sometimes due to swelling plus displacement of the fragments, and sometimes due to excessive hemorrhage after surgery, but in some cases certainly and perhaps in all cases of true ischemic paralysis, along with the pressure on the vessels, there is a spasm of the vessels. It is possible that this spasm could be released by local anesthesia, but so far it has not been tried. The spasm has been released successfully, however, by open surgery and then division of the nerves along the vessels (periarterial sympathectomy), similar to the method that Leriche used in spasmodic vascular disturbances.

Discussion

By ROBERT V. FUNSTEN, M.D.
University, Va.

I believe that Volkmann's contracture is caused by a blocking of the return of venous blood and to an extravasation of blood into the intracellular compartments of the muscle and other tissues. This may reach a sufficient pressure to cause damage to the vessels and nerves as well as the muscles.

In my opinion, the condition can usually be avoided by disregarding the (supracondylar) fracture, and allowing the arm to hang free in a slightly extended position suspended by traction on the forearm or hand. A moderate amount of heat may be beneficial.

If the condition does not improve within a few hours, or at least show some sign of improvement, I feel that one is thoroughly justified in making incisions into the aponeurotic layers of the muscles and the fibrous layers in the region of the elbow joint to relieve constriction. Later treatment consists in painstaking massage and stretching of the tissues which through organization of hemorrhage are becoming fibrosed.

Discussion

By G. E. HAGGART, M.D.
Boston, Mass.

Probably the basic lesion is not that of an arterial obstruction as previously was held but rather a blocking of the return venous flow of blood which may be precipitated by a severe hemorrhage into the arm with resultant compression on the veins due to the limitation of the hemorrhagic mass by the dense deep fascia. In some instances, it would seem to be definitely the result of an improperly applied splint.

When the condition is first apparent, the problem is that of disregarding a fracture or any other bone injury that may be present and simply making every effort to improve the circulation which could initially be obtained by elevation of the arm and a Balkan frame suspension, application of constant heat. The former procedure is best done by a skeletal wire fixation through the olecranon process, with the patient in bed.

At a slightly later stage, where definite circulatory changes are demonstrated and have been present, immediate surgery is warranted to divide the deep fascia and evacuate the contained blood clot commonly found in the antecubital space. It should always be remembered that in this group, as in later ones, it is important to splint the hand and fingers in the position of extension to prevent the flexion contractures that so consistently occur unless this step is taken.

In the late stages, the treatment is decidedly not satisfactory. When the deformity is not pronounced gradual stretching of the contracted muscles by a banjo splint with elastic finger traction and progressive extension at the wrist, has in many instances been quite helpful and markedly improved the situation. Various operative procedures have been proposed but in many instances are not especially helpful. Above all it is important that a very competent, and well-trained physiotherapist be in constant attendance. By this means alone a remarkable amount of improvement is often obtained.

Discussion

By PHILIP D. WILSON, M.D.
New York, N.Y.

I think that this is chiefly due to vascular disturbance following injury, usually a fracture either in the supracondylar region of the humerus or in the mid forearm. The vascular disturbance may be either reflex through the sympathetic with a contracture or spasm of the ves-

sels, or it may be an actual compression of the artery from the fracture or a thrombosis. I have seen both types.

I believe that we should operate in these cases immediately that the diagnosis can be made and that this is the only thing that offers hope of being able to prevent the development of the contracture. In cases where there is actual compression of the artery by bony fragment, this of course can be released by the operation. I think the operation should open the fascia, expose the artery and fracture itself. When there is found to be spasm of the artery this could generally be relieved by stripping of adventitia coat, (the peri-arterial sympathectomy of LeRiche). I have had no experience on these cases with nerve block but by injection in the region of the stellate ganglion, and this ought to be an effective method also. I would be afraid to rely upon it entirely, however, but would prefer to expose the artery and relieve what compression is found to be present. I would only use the sympathetic block in cases where the spasm was of reflex origin.

Discussion
By FRANK R. OBER, M.D.
Boston, Mass.

Theories about the cause of Volkmann's paralysis: One is the too tight application of a splint but Volkmann's paralysis can occur when no splint has been applied at all. In my opinion it is due to two or three things. First, hemorrhage beneath deep fibers which causes ischemia and second, a fragment of bone sticking through the bicipital artery which causes spasm of the vessel. These two are probably the most important.

The best treatment, if it is a hemorrhagic thing, is to cut down and relieve the pressure of the extravasated blood, and in case of arterial trouble it is best to remove the contact of the bone from the vessel. If the vessel is ruptured, it can be sutured or ligated. A splint should be put on with the fingers, hand and wrist in a cock up position.

Discussion
By J. S. SPEED, M.D.
Memphis, Tenn.

I believe that the condition is due entirely to local mechanical disturbance in the circulation and do not think there is any referable sympathetic influence, although this view is held by some.

Unfortunately, the treatment is largely preventive. Of course, immediate removal of all encircling bandages or splints is indicated in those cases with excessive swelling or constriction. The

line of demarcation between the amount of swelling which is unavoidable and permissible and that which is excessive is difficult to draw, and in most cases when a definite diagnosis of ischemic contracture is made the damage has already been done and measures for its relief are unavailing. It is felt by many that as soon as diagnosis is made the fascial covering of the extremity should be opened and any large blood clots removed. Such surgical procedure is usually too late to do any good and whether it is justifiable to sacrifice the position of the fracture by operation, is questionable.

After the condition has been definitely established, we feel that elevation of the limb and hot application are about the only treatment.

Sympathetic block or periarterial sympathectomy are of questionable value.

Discussion

By GUY W. LEADBETTER, M.D.

Washington, D.C.

Many years ago, I had a very wide experience with the end results of ischemic contractures while I was on the service of Dr. Baer at the John Hopkins Hospital. At that time, we saw a very large number of these cases which had had their contracture existing from a very few weeks' duration to several years. Needless to say, they were all badly crippled. We explored a great many of these forearms and found that all of the muscular structures were completely fibrosed into adherent masses with no contractility remaining. In a few instances a few pale, but somewhat viable muscular fibers were found in the deeper layers. Nothing was accomplished in the reparative process except a slight increased passive flexibility of the wrist and fingers due to the fact that we had freed adherent groups and allowed some stretching. It was largely a case of exploration to determine the exact pathology. In all of these instances, we found the arteries very badly thrombosed with a minimal amount of collateral established.

Accordingly, up to the last two or three years very little has been gained in the treatment of such conditions when they actually exist. All of the effort has been directed toward the teaching of prevention, being careful about the tight application of splints and emphasizing the necessity of inspection within a few hours, also emphasizing the fact that a supracondylar fracture of the elbow should not be placed in too acute flexion.

Recently, however, one or two cases which I have seen in consultation within

the first two days have shown definite and marked improvement by injection of the stellate ganglion with novocain. In these instances, there has been immediate improvement in the circulation of the extremities. This has usually been temporary but has been repeated two or three times in the two-week period. Gradually over a period of many months, there has been marked improvement as the result of this procedure. It is fairly clear, therefore, on a limited number of cases, that if the ischemia has not been prolonged over three or four days, a better prognosis may be offered by injection of the stellate ganglion, repeated at the proper intervals; if the initial injection shows even a temporary improvement in the circulation distal to the obstruction, then one can be much more optimistic, and the injection should be repeated. However, one must bear in mind that after this period of three or four days, no improvement can be expected, inasmuch as the vessels themselves become thrombosed, in varying degrees to be sure, but apparently sufficiently to block adequate circulation, and the muscle then becomes fibrotic and hence non-contractile.

Discussion

By HERMAN F. JOHNSON, M.D.

Omaha, Neb.

Volkmann's ischemic contracture presents an interesting problem and within the past three months I have unfortunately seen two cases. There is no question but what the position of acute flexion is one of the chief factors in producing compression in the anterior aspect of the elbow joint, thus producing a disturbance in both the arterial and venous circulation. In addition, there is evidence of compression of particularly the radial and median nerves, so that we have a combined neurovascular lesion. A similar condition may occur, especially in the severe crushing injuries of the forearm and elbow region.

The treatment in the early stages, that is as soon as recognized, is a fasciotomy, in which a short, longitudinal incision is made over the anterior aspect of the elbow region, paralleling the biceps tendon. This should extend down through the dense fascia, and usually as this tense structure is divided there will be a sudden outrushing of old blood. At the time of the fasciotomy, the brachial artery and the median and radial nerves should be carefully investigated. Following the "decompression operation" the arm should be suspended in semi-flexion.



CLINICAL NOTES and ABSTRACTS

Appendicitis Mortality

Appendicitis is the most common surgical disease of the abdomen. A reduction in the mortality has, therefore, attracted much attention.

Certain measures are helpful in reducing the morbidity and mortality rates:

1. The use of the McBurney incision or some modification is associated with a reduced mortality.
2. Delay in operation in perforative appendicitis is of great value.
3. Early ambulation is helpful in reducing the incidence of phlebothrombosis and pulmonary embolism. This also aids in restoring the function of the gastrointestinal tract.
4. The local and general use of the sulfonamides aids in combating infection in perforative appendicitis.
5. Appendiceal abscess encountered at operation should be drained extraperitoneally *after* closing the peritoneum. The drain should be brought out through a stab wound and the exploratory incision closed, without drainage.
6. The importance of early diagnosis cannot be overestimated.

In the Brooke General Hospital series there were 714 cases of acute, suppurative appendicitis, with two deaths.

Incision: McBurney incision or some modification of it was used. The incision began preferably at the level of the umbilicus. The high incision offered less danger to the ilioinguinal and the iliohypogastric nerves. Through it the low lying appendix could be easily pulled up, while the fixed, high lying one, could be more readily approached. When the maximum point of tenderness was low, the incision was altered to approximate this point.

Anesthesia: Spinal anesthesia was preferred, with 120 to 150 mgm. of procaine

crystals being injected into the third lumbar interspace. Intravenous pentothal sodium or light gas anesthesia was added, if needed for nervousness or for prolonging the operation.—LT. COL. H. H. FISHER and JOHN C. BURCH (M.C.). Notes from the Southern Medical Society Meeting, 1944.

(Fractional spinal anesthesia would have avoided the necessity for employing two different anesthetic agents; it also avoids the "one shot" dosage of spinal anesthesia by using only the amount necessary for the length of that particular operation.—Ed.)

Pinworm Infection

Pinworm infection causes a serious disturbance in the patient's sleep and is a frequent cause of anemia. The most frequent symptoms are restlessness in the sleep, nervousness, and poor appetite. If the private physician raises his index of suspicion and remembers that a feces specimen is almost useless for diagnosis, he will discover many cases.

In the treatment of pinworm infections, the first important step is a laboratory diagnosis. Some type of cellophane swab, used vigorously about the rectum in the early morning, is the simplest means of diagnosis. This should be used even though the diagnosis is already made by other means, for the proper use of the cellophane swab is the most convenient post-treatment method of determining whether complete cure has been obtained. Treat the household at one time, so that all will be cured or the reinfection will appear.

No one day treatment can hope to be permanently effective. A minimum of five days treatment, or better two weeks treatment, is needed. The longer treatment may be given as two seven-day periods of treatment with a week of rest

in between. The drugs of choice are an enteric coated tablet of gentian violet and phenothiazine. The daily dose of gentian violet is six one-half grain tablets and of phenothiazine 2 grams. This dose is given daily for one week, followed by a rest of one week, and a repetition of the treatment for a second week.

The older methods of treatment are still effective in most cases but are less convenient. A salt water enema with a fairly strong solution of table salt each night before retiring will, in most cases cure the pinworm infection, if continued daily for three weeks.—*N. C. Medical Journal*, February, 1944.

Pulmonary Embolus: Immediate Femoral Ligation

At the Massachusetts General Hospital, it is customary for the femoral veins to be ligated whenever a diagnosis of pulmonary embolus has been made. The diagnosis was suspected whenever any patient showed a slight rise in temperature, pulse and respirations. Study was instituted at once, and if it was felt that a thrombus existed, ligation was immediately carried out on both femoral veins.

This operation has decreased deaths and also the length of hospital stay. Not a single case of fatal emboli, following ligation, occurred, even though the embolus extended beyond the point of ligation and could not be removed by usual methods. The average hospital stay is 6 to 8 days, and the patients often got out of bed the day following operation.—*A. ALLEN, M.D.*, in *Rhode Island Med. J.*, Jan. 1944.

Drugs and the Small Bowel

Atropine sulfate and morphine sulfate decrease the motor activity of the jejunum and ileum. Pitressin and prostigmin increase the spontaneous motility of the small intestine; pitressin yielding a more constant and intense effect. Amyl nitrite, briefly but markedly, decreases the intestinal movements and tonus of the jejunum. These studies were made on normal human beings who had a tambour and kymograph connected with a Miller-Abbott tube introduced into the intestine 3 to 5 feet below the pylorus.—*FERNANDO HUIDOBRO, M.D.*, in *S. G. & O.*, May 1944.

If one suspects that small intestine spasm is causing pain, why not see if a dose of amyl nitrite would relieve it?—Ed.)

Use and Abuse of Forceps

Indication for the use of Forceps:

1. Fetal:

- a. Where delivery cannot be made normally in time so that the delivery will be safe." De Lee.
- b. Fetal anoxia: 1. Caused by pressure on the head, 2. caused by constriction of circulation, 3. caused by medication to relieve pain. A slow fetal heart beat (*under 100*) is a definite sign of anoxia. A rapid fetal heart beat is rare and unimportant.

2. Maternal:

- a. Prolonged arrest in second stage of labor. In many instances it may be well to shorten the second stage of labor, but use common sense.
- b. Tuberculosis.
- c. Heart Disease.
- d. Cesarean section
- e. Maternal exhaustion (this has almost ceased).

In my mind the less a physician knows about obstetrics, the more he knows about forceps. Remember the saying, "it is the man behind the forceps, not the instrument that is important." Choose one or two good instruments, learn how to use them, and then stick to them.

Abuses in the use of Forceps:

- a. Improperly dilated cervix. If some inventor could design a pair of forceps that could not be used unless the cervix was properly dilated it would be a boon to obstetrics.
- b. Incomplete rupture of the membranes.
- c. Incorrect application. Remember forceps are not to be used for compression. They should be applied to the sides of the head (black eye is indicative of poor technique). Poor technique may also result in trauma to the birth canal.
- d. Inaccurate knowledge of the size and presentation of the head.
- e. Inaccurate knowledge of the pelvis; overlooking an abnormal position.
- f. Improper engagement of the head. The head must be well engaged. High head engagement is a contraindication, as high forceps means high traction.
- g. Injurious or excessive use of drugs. Due to the over use of drugs, one is sometimes forced to use forceps to deliver a patient at term.

When fetal anoxia is diagnosed, oxygen, to the mother, should be started imme-

diately and continued between contractions as this will usually bring the heart beat back to normal (or close to it) within a relatively short time.

I am not in favor of the so-called prophylactic forceps. The use of forceps is steadily increasing. Caudal anesthesia is valuable when used correctly and wisely.—JOHN W. HARRIS, M.D. Notes from the Interstate Postgraduate Med. Meeting, 1944.

Glucose and Diet for Cardiac Patients

In this era of drug therapy and of intravenous injections, it is frequently forgotten that compensation often can be fully restored in cardiac failure by rest and diet alone; in many cardiac disorders, the complaints may be alleviated by proper advice on diet.

The patient should *never eat large quantities of food*. It is paradoxical that on a semi-starvation diet, cardiac patients will improve, maintain unusual vigor and respond to management readily.

A diet rich in carbohydrate was formerly recommended for cardiac patients in order to improve the nutrition and contractility of the heart. This advice was based on the mistaken impression that the heart muscle, like skeletal muscle, uses glucose as a source of energy. In patients with coronary disease, the intravenous injection of hypertonic glucose is harmful. It increases the circulating blood volume by withdrawing fluid from the tissues, thus increasing the strain on the heart; it also increases the disproportion between the heart's requirements and the available supply of blood in cases of syphilitic or arteriosclerotic coronary diseases. In such cases, anginal pain and marked changes in the electrocardiogram follow the intravenous injection of 40 cc. of 50 percent glucose solution.—DAVID SCHERF, M.D., in *Rev. Gastroent.*, Jan. 1944.

Pulse-Diet Record in Allergy

Within 1 hr. after ingestion of an allergenic food, a specific acceleration of the pulse rate occurs up to a maximum of 30 beats or more per minute above the normal maximum for the individual. This acceleration occurred in all patients studied, even in food-allergic persons who had not yet begun to experience any other allergic symptom. Some difficulties of interpretation of the pulse-diet record occur because of inhalant allergens, delayed reactions, and other factors pre-

viously discussed. A single food is used by the writer in trial diets.—A. F. COCA, M.D., in *Ann. Allergy*, Jan.-Feb. 1944.

Curing Anginal Pains

Pain which closely resembles that of angina pectoris has been cured by removing a chronically infected gallbladder, treating peptic ulcer or diverticulum of the esophagus, duodenum or colon, repairing a diaphragmatic hernia or other abdominal lesion.—F. M. GROEDEL, M.D. in *Am. J. Dig. Dis.*, Mar. 1945.

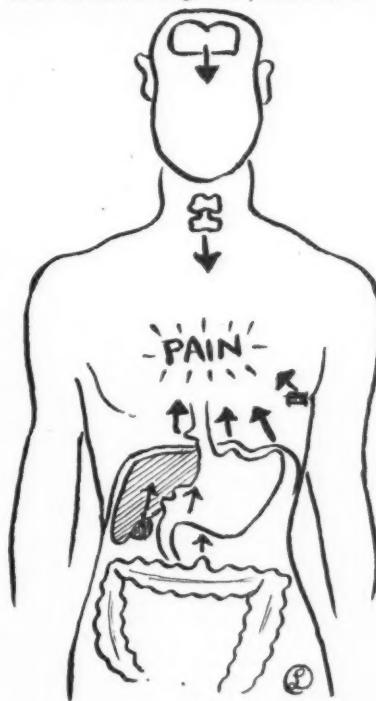


Fig. 1

Fig. 1 graphically illustrates those conditions which may result in pain in the sternal area. From above downward, they are 1. emotional causes, including the presence of angina pectoris in a friend or relative, 2. arthritis of the cervical spine with pressure on a nerve, 3. intercostal neuralgia, 4. abnormalities of the esophagus (diverticulum, spasm), 4. abnormalities of the diaphragm (hernia, hiatus hernia), 5. stomach and duodenal lesions (ulcer, tumor), 6. gallstones and 7. diverticuli and other abnormalities of the colon.

The Diagnosis of Diabetes Insipidus

A possible diagnosis of diabetes insipidus: The problem presented is usually that of an individual who gives a story of marked to extreme thirst and copious ingestion of fluid with accompanying polyuria. The question of distinguishing true diabetes insipidus from the several conditions characterized by polyuria and polydipsia has partly resolved itself into a rather simple test of the concentration of urine which is now carried out in all suspected cases. It consists simply of having the patient refrain from drinking any fluids for as long a period as he can without extreme discomfort. At the end of this interval, a specimen of urine is obtained. If the specific gravity of this specimen of urine is more than 1.010, the presence of diabetes insipidus is considered most unlikely. Obviously, a specific gravity of 1.011 or 1.012 warrants repeating the test.

The patient must not know the purpose of the test as a dishonest patient could dilute the urine with water. Many patients suspected of having diabetes insipidus are, in reality, simply nervous water drinkers. They may drink large quantities frequently during the day but few of them continue this during the night. A patient who has severe diabetes insipidus may awaken eight or ten or more times at night to pass urine and drink more water.

Almost all patients who have diabetes insipidus are relieved promptly by the administration of a posterior pituitary preparation; either the whole powder is insufflated into the nose or aqueous pitressin or pitressin tannate in oil is administered hypodermically. The nasal administration of the powder is the least expensive method; there are no unpleasant side effects, such as intestinal distress, which may follow the hypodermic use of pitressin.—E. H. RYNEARSON, M.D., in *Staff Meetings of the Mayo Clinic*, Feb. 9, 1944.

Treatment of Squint in Childhood

Diagnosis of squint or strabismus in children can usually be made as early as 4-6 weeks after birth; treatment by glasses may be begun at 12-18 months of age. Refraction by retinoscopy with atropine mydriasis should be done and full correction given, allowing 1 diopter for retinoscopy and 5 for the drug. Atropine should be given for 2-3 weeks to encourage wearing of glasses during all waking hours. If the child still squints after he tolerates his glasses, atropine should be used in the non-squinting eye for 1 month, and if this is ineffective complete occlusion by a pad or patch should be started. When the alternating squint develops after occlusion, orthoptic training, with some modification of Worth's amblioscope or with prisms, should be begun. If these methods produce no improvement within 3 months, surgery must be done regardless of age; it is usually performed at 3-5 years.—S. H. PATTERSON, M.D., in *Ohio M. J.*, Mar. 1944.

* Narcotic "Don't's" for the Physician

Don't leave prescription pads lying around. Addicts want them for effecting narcotic forgeries.

Don't write a narcotic prescription in lead pencil. Avoid writing any prescription in pencil. Many are changed to call for morphine.

Don't write for narcotics this way: Morphine HT $\frac{1}{2}$ #X or Morphine HT $\frac{1}{4}$ #10. Several X's or Zeros can be added to raise the amount. Use brackets or spelling.

Don't carry a large stock of narcotics in your bag. Addicts are on the lookout for these in doctor's offices and cars.

Don't store your office supply where patients can get at it. Avoid storage near sink or urinal. The patient may ask to use these.

Don't fall for a story from a stranger claiming ailment that usually requires

Treatment of Biliary Colic

		Status of gallbladder
First	Intact gallbladder	Gallbladder removed
	Morphine-atropine given together	Morphine-nitroglycerin given together
If Not Relieved	Atropine or nitroglycerin every 4 hours with morphine (alternate)	Morphine as needed; nitroglycerine alternated every 4 hours with atropine

morphine. The addict can produce bloody sputum, simulate bad coughs or other symptoms. Make your own diagnosis.

Don't give a narcotic prescription to another without seeing the patient. Addicts have posed as nurses to get doctors to prescribe narcotics.

Don't write for large quantities of narcotics unless unavoidable. Diversion to addicts is a profitable business, as much as \$1.00 for $\frac{1}{4}$ gr. MS.

Don't prescribe narcotics because of a story that another physician had been doing it. Consult that physician or the hospital records whenever possible.

Don't leave prescriptions signed in blank at the office for nurses to fill in. Signed blanks are bad practice and many have been stolen by addicts.

Don't treat an ambulatory case of addiction. Addicts must be under proper control. Addicts go to several physicians at a time. Notify local narcotic authorities.

Don't dispense any narcotics without keeping a record of it. *Bedside and office administration are permitted without record.*

Don't buy your office narcotic needs on a prescription blank in the name of an alleged patient. The law requires you to use an official order form.

Don't resent a pharmacist's call for information about a prescription you may have written. The pharmacist is held responsible for filling forgeries. Please cooperate.—H. J. ANSLINGER, Commissioner of Narcotics in *J. American Pharm. Assn.*, May, 1944.

Bacteria: Fusiform bacilli and Vincent's spirochete are most commonly found, often with streptococci, thus explaining the rationale of one or more injections of neobarsphenamine plus sulfadiazine in the treatment of such infections.

Severe cellulitis has been treated with penicillin with rapid subsidence of fever and localization of infection.

Trismus: Trismus is diagnostic of a parapharyngeal space infection. It is frequently due to an irritative spasm of the internal pterygoid muscle.

Secondary Complications: 1. Edema of the larynx may occur at any time. If a tracheotomy may be necessary, plan for it rather than performing an emergency tracheotomy. 2. Osteomyelitis of the mandible may occur. This complication did not occur in our series, even when the mandible was exposed at operation.

Treatment: 1. The first step in treatment should be the correction of dehydration.

2. Neoarsphenamine, 0.3 to 0.5 Gm., is given intravenously.

3. Sulfadiazine is given if streptococci or pus are found in the lesion.

4. Surgical treatment: For the patient with trismus, procaine solution infiltrated both superficially and deep should be used as the anesthetic of choice.

A knot should be tied in the deep end of the drain so that it will not slip out prematurely.

Causes: Extraction of teeth furnishes most cases of neck infections. In one-third of our cases, no surgical trauma preceded the neck abscess but the infection resulted merely from an extension of the disease in the mandible into the deeper tissues of the neck.—ARTHUR M. ALDEN, M.D. Notes from the Southern Medical Society Meeting, 1944.

Neck Infections of Dental Origin

The death rate of neck infections has been much lowered in the last ten years, due to better surgical technic and improved diagnoses.

The fascial planes must be known before operating. Pus pockets are easy to find and drain if the fascial planes are understood.

Fascia binds structures together into a series of potential compartments. When an abscess forms, it spreads the fascia apart and forms a true compartment because the fascia limits the spread of infection.

The most important fascial spaces are the submental, the submaxillary, and the parapharyngeal. An abscess in one of these spaces or a combination of spaces is associated with a definite clinical picture. Submaxillary space infection, alone or in combination, is the most common, being found in 2/3 of our series of cases.

Delayed Morphine Poisoning

Dangerous respiratory depression and coma from sudden absorption of large doses of morphine occur most frequently when the $\frac{1}{2}$ gr. dose supplied in the Syrette is given subcutaneously to a chilled patient with low blood pressure; lack of circulation does not allow the drug to take effect, hence a second dose is often given within a short time. When normal circulation is later established an excessive amount of morphine is suddenly absorbed. The condition must be promptly diagnosed and treated; a tourniquet placed near the site of injection will retard the rate of absorption.—Bull. U. S. Army M. Dept., Mar. 1944.



DIAGNOSTIC POINTERS

Varicose Veins

• Injection treatment is a most valuable method for the cure of varicose diseases. Increasing experience has, however, more clearly defined its usefulness and limitations. Injections are likely to be successful and effective when the varicose infection does not extend above the knee, when there is no incompetence of the main internal saphenous vein in the thigh, and when the veins to be treated are relatively tortuous and thin-walled.—"Minor Surgery." (Philosophical Library).

Migraine

• The woman with migraine headaches does not need a thorough medical "overhauling." One never finds the "cause" of migraine by any amount of searching throughout the body. The cause is a hereditary predisposition; the attack is a sort of storm which takes place in an overly sensitive brain.

Time should be spent in talking over their life problems and in showing them how to live more calmly and happily.—WALTER ALVAREZ, M.D., in *Rhode Island M. J.*, Sept., 1944.

Symptoms Preceding Suicide

• These patients may commit suicide: (1) Those who have attempted suicide previously, no matter how superficial and futile, (2) sudden change in clinical picture, e.g. from severe agitated depression to apparent calm, which may mean that the patient has made his decision to resolve his problem by suicide, (3) marked, persistent insomnia and anorexia, especially if associated with tension and anxiety, (4) perseveration of hypochondriacal somatic delusions, (5) expression of feeling of guilt, unworthiness and self-depreciation, (6) severe apprehensiveness, anxiety, fears and states of panic or (7) delusions of influence of self-destructive character.—"Manual of Military Neuropsychiatry" (W. B. Saunders Company, Philadelphia).

Deficient Diets in Young People

• The chief faults in the diet of young people today are: (1) Excessive use of meat, white bread and potatoes, (2) lack of coarse bread, (3) lack of vegetables at noon meal, (4) lack of a variety of cooked cereals, (5) too few salads, (6) poorly cooked and flavored vegetables, (7) little or no fruit at breakfast and (8) too little milk.—FRANKLIN SMILEY, M.D., in "A College Textbook of Hygiene" (MacMillan Company).

Significance of Nasal Discharge

• Yellow and mucopurulent discharge suggests sinusitis. Thin, watery discharge indicates acute rhinitis or allergic rhinitis (hay fever or recurrent vasomotor rhinitis). Expulsion of thick crusts which are foul smelling to others but not to the patient may indicate atrophic rhinitis. Persistent, unilateral slight or moderate blood-tinged nasal discharge in an older person, if associated with obstruction of that nostril, is a common symptom of sinus malignancy.—F. L. WEILLE, M.D., in *Med. Clin. N. Am.*, Sept., 1944.

(Unilateral nasal discharge in children usually indicates a foreign body in the nostril.—Ed.)

Stomach Ulcer

• In the absence of hemorrhoids and hemorrhage from the mouth, throat or nose, the presence of "occult" blood in the feces is strong evidence that ulceration is present in the stomach or intestine; when symptoms pointing to gastric or duodenal ulcer and gastric carcinoma are absent, and constipation is present, a suspicion of cancer of the colon receives important confirmation.—FRENCH: "Index of Differential Diagnosis" (Wm. Wood and Co., Publishers).

Rectal Symptoms

• Any mild symptom that is sufficient to attract attention to the rectum may be symptomatic of cancer. In these patients the first recognizable symptoms of their rectal cancers, in order of frequency, are: blood in the stools, constipation, increase in flatus, diarrhea, pain and mucous discharge. The importance of a rectal examination should never be overlooked.—*Medical World (London)* August, 1943.



THUMBNAIL THERAPEUTICS

Menorrhagia of Puberty

- The menorrhagia occurring at puberty may be treated by use of one to two grains of thyroid extract daily. If the bleeding is severe, the patient should remain in bed and be given injections of pitocin, $\frac{1}{2}$ cc. every 6 hours for 48 hours.—J. H. PEEL, M.D., in *Med. World*, (Lond.), March 10, 1944.

Peptic Ulcer and Caffeine

- Caffeine containing beverages stimulate gastric secretion in man (it must not be forgotten that "cokes" and many popular soft drinks contain caffeine—Ed.), and an increased total output of acid. The use of coffee should be avoided by ulcer patients.—A.C. IVY, M.D. in *J.A.M.A.*, Nov. 25, 1944.

Fractures in the Aged

- Old persons with fractures should be given vitamins routinely. It is surprising how often these old people show improvement in their general health during their convalescence, and how often they will appear better at the end of their convalescence than they have been in many years. The so-called normal diet is often insufficient to provide sufficient thiamin (B₁), vitamin C and nicotinic acid portion of the B complex.—L. W. BRECK, M.D. in *Southwestern Med.*, Aug., 1944.

Herpes Ophthalmicus

- To the affected skin areas apply several times a day the following:

Tinct. Benzoin	12.0
Ung. Aq. Rosarum q. s.	30.0

Later give quinine salicylate in water three times daily, and include vitamin B in diet.—E.E.N.T.M., Oct., 1943.

Muscle Spasm With Appendicitis

- One cannot safely permit a patient with spasm of the abdominal muscles due to possible appendicitis, to receive expectant treatment. Appendectomy must be performed as perforation may occur.—W. H. COLE, M.D., in *Miss. Valley Med. J.*, January, 1945.

Lard Diet for Eczema

- The blood serum of infants and children suffering from eczema has been studied and it has been found that the degree of unsaturation of their blood fats tends to be definitely lower than in individuals of the same age who have no skin abnormality. Lard is relatively rich in essential unsaturated fatty acids.

The feeding of lard with the diet resulted in definite improvement in patients under the age of 16. Infants took the lard directly from a spoon with no difficulty. Older children preferred to spread it on crackers or bread, or mixed with peanut butter or cinnamon. Most patients had little difficulty in taking a tablespoon of lard two or three times daily.—ARILD E. HANSEN, M.D. in *Food and Nutr. News*, Mar., 1944.

Penicillin for Streptococcal

Pharyngitis

- Penicillin is very effective against hemolytic streptococcal infections, of the nasopharynx, although there is a tendency to relapse after discontinuing penicillin therapy.—NORMAN PLUMMER, M.D., in *J. A. M. A.*, February 17, 1945.

Penicillin for Appendiceal Peritonitis

- Experimental studies indicate that penicillin in adequate doses (15,000 units every 3 hours) may be effective in combatting peritonitis secondary to perforated appendicitis.—G. B. FAULEY, M.D. in *J.A.M.A.*, Dec. 30, 1944.

Typhoid Fever:

New Method of Protection

- Intradermal injection of typhoid vaccine is believed to provide as much protection as subcutaneous injection in 1/10 the dose required for the latter, and is far less painful and uncomfortable. Of 946 children aged 2 years and up, 90% voluntarily completed the course of 3 intradermal injections; except for chills, fever, and aching for 1 day in 3 high school girls, the only complaint was soreness about the injection site for 1-3 days in a number of instances.—M. KAMP, M.D., in *Monthly Bull. Indiana State Bd. of Health*, Jan., 1944.

NEW BOOKS

Any book reviewed in these columns will be procured for our readers if the order, addressed to CLINICAL MEDICINE, Waukegan, Ill., is accompanied by a check for the published price of the book.

GERIATRIC MEDICINE Stieglitz

GERIATRIC MEDICINE. Edited by Edward J. Stieglitz, M. S., M.D., F.A.C.P., Consultant in Gerontology, National Institute of Health; Visiting Physician, Medical Service, Baltimore City Hospitals; Attending Physician, Washington Home for Incurables, Washington, D. C. 887 pages with 187 illustrations. Philadelphia and London: W. B. Saunders Company. 1943. Price, \$10.00. Fifty consultants here offer their help in diagnosing and treating diseases of the older patient.

"Geriatrics is not sufficiently demarcated to be classed as a specialty, rather it is a point of view, an attitude of mind which takes cognizance of the changes consequent to aging."

The contributors are well known in their respective specialties. Anton Carlson has done an outstanding job on the physiology of older persons. Peter's discussion on urologic problems gives many points of practical value.

The book is well rounded, complete and of interest to every physician and surgeon who must care for old patients. The only criticism that might be made is that the general tone is philosophical and leisurely, so much so that are important points.

INFECTIONS OF THE PERITONEUM Steinberg

INFECTIONS OF THE PERITONEUM. By Bernhard Steinberg, M.D. Director, Toledo Hospital Institute of Medical Research; Past Fellow of National Research Council and Former Crile Research Fellow, Western Reserve University—Paul B. Hoeber, Inc. 1944. Price \$8.00.

This monograph brings together the facts that are known about the physiology and pathologic changes occurring in peritonitis, how to recognize the various stages clinically, what treatment and prevention is fundamentally sound, the important findings that may be obtained by abdominal aspiration, peritoneal inflammations in children and uncommon types of peritonitis.

The information is presented in a well balanced form, rather than in dogmatic statements.

SHIP'S DOCTOR Hooker

SHIP'S DOCTOR. By Rufus W. Hooker, M.D. Published by Whittlesey House, McGraw-Hill Book Company, Inc. Price \$2.50.

This is a group of stories by a seagoing physician concerning various incidents that occurred in the course of eleven years travel on the high seas. There is little description of the countries visited but much detail and interest in the persons who shipped with him; were treated and cared for by him; crew

members who had their fractures and lacerations after port brawls; the Ambassador he embalmed; his first experience with discipline of the sea and finally, his foregoings of retirement to be surgeon on a ship sailing between Honolulu and the United States to carry wounded soldiers back from Pearl Harbor.

TECHNICAL METHODS FOR THE TECHNICIAN Brown

TECHNICAL METHODS FOR THE TECHNICIAN. By Anson L. Brown, M.D., Director of Dr. Brown's Clinical Laboratory and Dr. Brown's School for Technicians, Columbus, Ohio. Published by the Author, Columbus. Third Edition. 1944. \$10.00.

Of course, competent skilled instruction and aid must be given but this book seems to contain all the essentials that are commonly required in the clinical laboratory. Every test is printed in a separate section and each step is so classified that it can be found and followed readily. The significance of each test is briefly explained.

"This volume has been prepared primarily for the use of the students in the school of technicians maintained by the author. We doubt its value except for them, since no explanatory material is included. That, we presume, is given in the lectures and oral instruction which accompany the use of this manual.

"For general use, however, the 'Cook-book' method is quite inadequate, inasmuch as the worst possible technician of any sort is the one who performs tests merely by rote and has little or no comprehension of the reasons for the various procedures."—Pathologist J.W.

INDUSTRIAL MEDICINE

THE PRINCIPLES AND PRACTICE OF INDUSTRIAL MEDICINE. Edited by Fred J. Wampler, M.D., Professor, Preventive and Industrial Medicine, Medical College of Virginia, Richmond.—The Williams and Wilkins Co., 1943. Price \$6.00.

This is a "must" for the plant and industrial surgeon. Many medical problems, such as the industrial back injury, occupational skin diseases, substances causing occupational poisoning, fatigue, industrial accidents, are discussed by various men who have made special study in each field.

The paper work, the effects of abnormal light and air, temperature and humidity, the technic of the physical examination, pneumoconiosis, treatment of traumatic shock and burns, all are presented well, although illustrations are almost completely lacking.

JOSEPH LISTER Truax

JOSEPH LISTER: Father of Modern Surgery. By Rhoda Truax. Published by The Bobbs-Merrill Co., 1944. Price, \$3.50. This book is of interest to all surgeons and physicians who wish to know of the foundation of modern aseptic surgery; all persons who are thrilled by a story of achievement.

Both Lister's personal life and his medical accomplishments (with information on how they were brought about) are included in this book.

It is so interesting that one reads on as if it were a novel. This is a beautifully written, human story of a great man and his equally great wife.